

Center for Memory and Recording Research

**RESEARCH
REVIEW &
ADVISORY
COUNCIL
MEETING**

March 13-14, 2019



CMRR @ UC San Diego
cmrr.ucsd.edu

RESEARCH REVIEW PROGRAM

WEDNESDAY, MARCH 13

8:30 AM Continental breakfast at CMRR Lobby

8:55 AM Welcome and Introduction

9:00 AM **Tribology, Mechanics and Medical Device Technology** **Prof. Frank Talke**

Voltage biasing and nano corrosion Tan Trinh

Repeatable Runout of Glass Disks in Air, Vacuum, and Helium Qin Zhao & Zijan Zeng

Reliability studies of the HAMR head disk interface Tan Trinh

Current progress on the Design of an Intraocular Pressure Sensor Phuong Truong

10:00 AM **10 MINUTE BREAK**

10:10 AM Internet Enabled Optical Handheld Reader for an Interferometric Pressure Sensor Alex Phan and Buu Truong

Design and implementation of an esophageal deflection device Karcher Morris & Dora Trieu

Designing a detachable bronchoscope Matthew Kohanfars & Yu Li

Biofilm Retardent Urinary Catheter Oren Gotlib

11:10 AM **5 MINUTE BREAK**

11:15 AM **Signal Processing & Coding** **Prof. Paul Siegel**

Hybridized Staircase Scheme for Asymmetric Compound Channels Karthik Nagarjuna Tunuguntula

Polarization Behavior for a Family of Large Kernels Wei Wu

On the Capacity of Flash Memory Channel with Inter-cell Interference Yonglong Li

12:00 PM **5 MINUTE BREAK**

12:05 PM Phase-Functioned Neural Network for Bad Page Detection in NAND Flash Memory Yi Liu

Correcting Errors in Sets of Unordered DNA Strands Andreas Lenz

12:40 PM

LUNCH - CMRR Lobby

RESEARCH REVIEW PROGRAM

WEDNESDAY, MARCH 13

1:40 PM	New Affiliate, Assistant Research Scientist Hailong Wang	
	Spin Current Transmission Mediated by Antiferromagnetic Materials	Hailong Wang
2:00 PM	Memory System Design with Emerging Technology	Asst. Prof. Jishen Zhao
	Sting Figure: A Scalable and Elastic Memory Network Architecture	Matheus Ogleari
	Processing-in-Memory for Energy-efficient Neural Network Training: A Heterogeneous Approach	Hengyu Zhao
	Towards Fast and Energy-Efficient Binarized Neural Network Inference on FPGA	Cheng Fu
3:00 PM	Unconventional Computing with Memory	Prof. Max Di Ventra
	Machine learning with Memcomputing	Haik Manukian
3:15 PM	5 MINUTE BREAK	
3:20 PM	Micromagnetic Modeling & Recording Physics	Prof. Vitaliy Lomakin
	Micromagnetic modeling of nonuniformities in perpendicular magnetic tunnel junctions for MRAM	Iana Volvach
	Computing Excitation States and Resonant Modes in Micromagnetic Systems with a Finite-element Based Frequency Domain Solver	Zhuonan Lin
	A fast algorithm to reconstruct 3D object in CXDI based on massively parallel processing	Fangzhou Ai
	Landau-Lifshitz-Gilbert Equation (LLGE) Coupled Valet-Fert Theory in Consideration of Spin Hall Effect	Xueyang Wang
	THz signals in FeRh excited by a sub-picosecond thermal pulse	Marco Menarini
5:10 PM	POSTER SESSION	
5:30 PM	RECEPTION AT CMRR LOBBY	
6:00 PM	ADVISORY COUNCIL MEETING	

RESEARCH REVIEW PROGRAM THURSDAY, MARCH 14

8:30 AM Continental breakfast at CMRR Lobby

9:00 AM **Magnetic Films and Nanostructures**

Prof. Eric E. Fullerton

Directional growth in Pt/Co/Ni multilayers

Jeffrey Brock

Ultrathin Au/Si hyperbolic metamaterials: from light emission to spintronic applications

Mohammed El Hadri

9:45 AM **Kenji Nomura Group**

Prof. Kenji Nomura

Metal Oxide Nanowire for Next Generation Electronic Devices

Chi-Hsin Huang

10:00 AM **10 MINUTE BREAK**

10:10 AM **Chunhui Du, Assistant Professor in Physics - Invited Speaker**

Control and Local Measurement of the Spin Chemical Potential in a Magnetic Insulator

Asst. Prof. Chunhui Du

LUNCH - CMRR Lobby

